

Remarks

Applicant notes that the article entitled "PACS at Work: A Multimedia E-Mail Tool for the Integration of Images, Voice and Dynamic Annotation", which was cited by Applicant in an Information Disclosure Statement filed on 21 August 2001, was not initialed as considered by the Examiner on Form PTO-1449. Applicant respectfully requests that the Examiner consider this article, and has enclosed a duplicate copy for the Examiner's convenience.

Claim 12 stands rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,272,470 ("Teshima"). Claims 1-6 and 8-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Teshima in view of U.S. Patent 6,397,224 ("Zubeldia"). Claims 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Teshima in view of U.S. Patent 6,415,295 ("Feinberg").

**Claim Rejections Under § 102(e) based on Teshima.**

Independent Claim 12 stands rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,272,470 ("Teshima").

Teshima discloses an electronic clinical recording system capable of handling an electronic record of a patient's consultation record (Abstract). In the Teshima system, patient data is fetched from a measuring instrument directly into a computer, and is put in a file. The file is then referenced in a consultation record, which is stored in a patient card (c.5, lines 9-15). Alternatively, the patient data can be stored directly on the patient card (c.5, lines 22-31).

In contrast to the system disclosed in Teshima, Claim 12 recites, among other limitations:

...updating means for updating the stored personal data wherein the updating means comprises a **database management server that interacts with the Internet web browser so as to allow updating of the stored personal data.**  
[emphasis added]

Although Teshima discloses updating of a patient consultation record, and using an internet browser to **view** patient consultation records, Teshima does not teach the limitation cited above. In particular, while Teshima discloses using an internet browser to **view** patient data (Teshima c.9, lines 40-53), Teshima contains no teaching of using an internet browser to **update** patient data. Moreover, Teshima actually **teaches away** from the cited limitation, since Teshima teaches that patient data is fetched from the measuring instrument directly into a computer file, which is then referenced in a consultation record (Teshima c.5, lines 9-15). Therefore, Applicant submits that Teshima does not anticipate Claim 12, and respectfully suggests that Claim 12 is in condition for allowance.

**Claim Rejections Under § 103(a) based on Teshima and Zubeldia.**

Claims 1-6 and 8-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Teshima in view of U.S. Patent 6,397,224 ("Zubeldia"). Claims 2-5 depend from independent Claim 1, and Claims 8-11 depend from independent Claim 6.

As described above, Teshima discloses an electronic clinical recording system capable of handling an electronic record of a patient's consultation record (Abstract). In the Teshima system, patient data is fetched from a measuring instrument directly into a computer, and put in a file. The file is then referenced in a consultation record, which is stored in a patient card (c.5, lines 9-15). Alternatively, the patient data can be stored directly on the patient card (c.5, lines 22-31).

Zubeldia discloses a patient data record management system that is capable of identifying data records that are related to a particular individual. The system is also capable of anonymously linking related data records, thereby allowing such records to be used in medical research studies without compromising patient confidentiality (c.2, lines 43-49).

In contrast to the systems disclosed in Teshima and Zubeldia, Claim 1 recites, among other limitations:

**...the Internet browser interacts with the database management server so as to allow updating of the personal data stored on the database management server. [emphasis added]**

Although Teshima discloses updating of a patient consultation record, and using an internet browser to **view** patient consultation records, Teshima does not teach the limitation cited above. The Examiner points to c.6, lines 49–58 as teaching the cited limitation. This passage discloses only that electronic clinical recording systems can be interconnected on a local area network that can be connected to the internet. Furthermore, while Teshima discloses using an internet browser to **view** patient data (Teshima c.9, lines 40-53), Teshima contains no teaching of using an internet browser to **update** patient data. Moreover, Teshima actually **teaches away** from the cited limitation, since Teshima teaches that patient data is fetched from the measuring instrument directly into a computer file, which is then referenced in a consultation record (Teshima c.5, lines 9–15). Furthermore, the Examiner has proffered no argument that Zubeldia teaches any deficiencies of Teshima with respect to Claim 1.

In view of the foregoing, Applicant submits that the combination of Teshima and Zubeldia do not render Claim 1 unpatentable, and therefore respectfully suggests that Claim 1 is in condition for allowance. Furthermore, because Claims 2–5 depend from Claim 1, Applicant submits that Claims 2–5 are allowable over Teshima and Zubeldia for the same reasons that Claim 1 is allowable.

Likewise, in contrast to the systems disclosed in Teshima and Zubeldia, Claim 6 recites, among other limitations:

...the personal data residing on the database management server can be updated  
using an Internet web browser interface....

Although Teshima discloses updating of a patient consultation record, and using an internet browser to **view** patient consultation records, Teshima does not teach the limitation cited above. In particular, while Teshima discloses using an internet browser to **view** patient data (Teshima c.9, lines 40-53), Teshima contains no teaching of using an internet browser to **update** patient data. Moreover, Teshima actually **teaches away** from the cited limitation, since Teshima teaches that patient data is fetched from the measuring instrument directly into a computer file, which is then referenced in a consultation record (Teshima c.5, lines 9–15). Furthermore, Zubeldia merely discloses

a database containing personal information, and does not disclose **updating** that database, regardless of the interface used. Thus, even if the teachings of Teshima and Zubeldia are to be combined, the cited limitation of Claim 6 is not provided by either of these references.

In view of the foregoing, Applicant submits that the combination of Teshima and Zubeldia do not render Claim 6 unpatentable, and therefore respectfully suggests that Claim 6 is in condition for allowance. Furthermore, because Claims 8–11 depend from Claim 6, Applicant submits that Claims 8–11 are allowable over Teshima and Zubeldia for the same reasons that Claim 6 is allowable.

**Claim Rejections Under § 103(a) based on Teshima and Feinberg.**

Independent Claim 13 and independent Claim 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Teshima in view of U.S. Patent 6,415,295 ("Feinberg").

As described above, Teshima discloses an electronic clinical recording system capable of handling an electronic record of a patient's consultation record (Abstract). In the Teshima system, patient data is fetched from a measuring instrument directly into a computer, and put in a file. The file is then referenced in a consultation record, which is stored in a patient card (c.5, lines 9–15). Alternatively, the patient data can be stored directly on the patient card (c.5, lines 22–31).

Feinberg discloses a data compression and storage system for personal medical information. Medical data that is compressed based on the occurrence frequency of the information for a particular patient population can be provided on a human and/or computer readable card. Several different data compression techniques are provided; these techniques can be implemented independently or in combination (c.4, lines 7–27).

In contrast to the systems disclosed in Teshima and Feinberg, Claim 13 recites, among other limitations:

...said personal data is updateable from a database management server using the Internet web browser.

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**Amendment Dated 30 December 2003**  
**Reply to Office Action Mailed 2 July 2003**

Although Teshima discloses updating of a patient consultation record, and using an internet browser to **view** patient consultation records, Teshima does not teach the limitation cited above. The Examiner points to c.6, lines 49–58 as teaching the cited limitation. This passage discloses only that electronic clinical recording systems can be interconnected on a local area network that can be connected to the internet. Furthermore, while Teshima discloses using an internet browser to **view** patient data (Teshima c.9, lines 40-53), Teshima contains no teaching of using an internet browser to **update** patient data. Moreover, Teshima actually **teaches away** from the cited limitation, since Teshima teaches that patient data is fetched from the measuring instrument directly into a computer file, which is then referenced in a consultation record (Teshima c.5, lines 9–15).

Feinberg does not teach the limitation cited above. Thus, even if the teachings of Teshima and Feinberg are to be combined, the cited limitation of Claim 13 is not provided by either of these references. Therefore, Applicant submits that Teshima and Feinberg do not render Claim 13 unpatentable, and respectfully suggests that Claim 13 is in condition for allowance.

Likewise, in contrast to the systems disclosed in Teshima and Feinberg, Claim 14 recites, among other limitations:

...the personal data stored on the database management server is updateable via the Internet web browser.

Although Teshima discloses updating of a patient consultation record, and using an internet browser to **view** patient consultation records, Teshima does not teach the limitation cited above. In particular, while Teshima discloses using an internet browser to **view** patient data (Teshima c.9, lines 40-53), Teshima contains no teaching of using an internet browser to **update** patient data. Moreover, Teshima actually **teaches away** from the cited limitation, since Teshima teaches that patient data is fetched from the measuring instrument directly into a computer file, which is then referenced in a consultation record (Teshima c.5, lines 9–15).

Feinberg does not teach the limitation cited above. Thus, even if the teachings of Teshima and Feinberg are to be combined, the cited limitation of Claim 14 is not

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provided by either of these references. Therefore, Applicant submits that Teshima and Feinberg do not render Claim 14 unpatentable, and respectfully suggests that Claim 14 is in condition for allowance.


**Conclusion.**

In view of the foregoing amendments, the Applicant submits that this application is in condition for allowance, and respectfully requests the same. If, however, some issue remains that the Examiner feels can be addressed by an Examiner's Amendment, the Examiner is cordially invited to call the undersigned for authorization.

Respectfully submitted,

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Dated: 30 dec 03

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AMEND

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Computer Assisted Radiology.  
H.U. Lemke et al., editors.

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## **PACS at Work: A Multimedia E-Mail Tool for the Integration of Images, Voice and Dynamic Annotation**

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### **1. Abstract**

Traditionally, the motivation behind implementation of Picture Archiving and Communication Systems (PACS) was to lower the cost of running a radiology department by reducing film costs. In today's health care environment, the interest in PACS is driven more by the possibility of improving productivity throughout the hospital. Time and money are wasted by searching for diagnostic information which is either temporarily misplaced or in-route from another location. This diagnostic information is urgently needed to make therapeutic decisions. There is a substantial potential for improving workflow and efficiency in a clinical environment by having the right information at the right time in the right place.

To provide more complete radiological information to the clinical areas, a new medical reporting tool has been developed. This tool creates radiological reports which combine images, written text and digital voice recordings with dynamic annotation. The reports can be distributed either via the local communication network of the PACS environment and/or --as an e-mail -- via the Internet.

### **2. Introduction**

In conventional hospitals, four major factors contribute to the delayed and incomplete exchange of information from radiology to the clinical areas:

- The radiological images are available on film but have not yet been reported.
- The information provided by the radiologist is unclear, but the radiologist is not available for consultation.
- The images are available, and the final report has been dictated but not yet transcribed.
- The images are available, and the final report has been dictated and transcribed. The images and their report have left radiology (hopefully together) but not yet arrived at their destination.

As a result, the films associated with urgent cases might leave the radiology department before being reported by the radiologist. In the worst case scenario, the films leave radiology before being reported and then have to be retaken because the information is lost before treatment is administered.

In hospitals equipped with PACS and digital clinical networking, softcopy reading on diagnostic workstations and the subsequent electronic distribution of images from radiology to a clinician's review station significantly improve the access to image information. Softcopy reporting and electronic image distribution eliminate the risk of delaying or losing examinations associated with manual image distribution.

The benefits of the electronic distribution of radiological examinations can be extended by combining images, voice, dynamic annotations and text. A new medical software tool has been developed to create and distribute multi-media reports. This tool enables the user to add text, use an electronic grease pencil, dictate impressions and record cursor movements to more fully describe the findings associated with the examination. After the multimedia report (MMR) is completed, the tool allows the user to archive the MMR on a local disk or central archive. The report can be distributed to clinicians as an electronic mail message via a local area network, wide area network or the Internet. These capabilities result in fast and cost-efficient distribution of the radiological examination and its associated findings to the clinical areas (for example: intensive care unit, operating room, emergency room and wards).

MMR provides a quick and efficient means of creating an instant, self-explanatory report. The recipient of a multi-media report can examine the images, view the annotations and text or play back the cursor movements and voice recording. The dynamic drawings and voice annotation are played back (like a video tape) exactly as they were recorded by the radiologist who created the multi-media report.

One application of MMR is to create a preliminary report which is immediately available to the clinicians without waiting for the final transcription of the dictation. The findings of the examination can be demonstrated to clinicians and referring physicians in a very illustrative and comfortable way.

For complex cases, MMR allows colleagues to get a second opinion without the need for real-time phone contact. The multi-media report provides a type of off-line teleconferencing and improves the radiological services offered to the referring physician. It is also possible to create teaching and scientific files containing typical or special cases with highlighted findings.



### 3. User Interface/Functionality

The main window of the MMR tool (see illustration below) features the following:

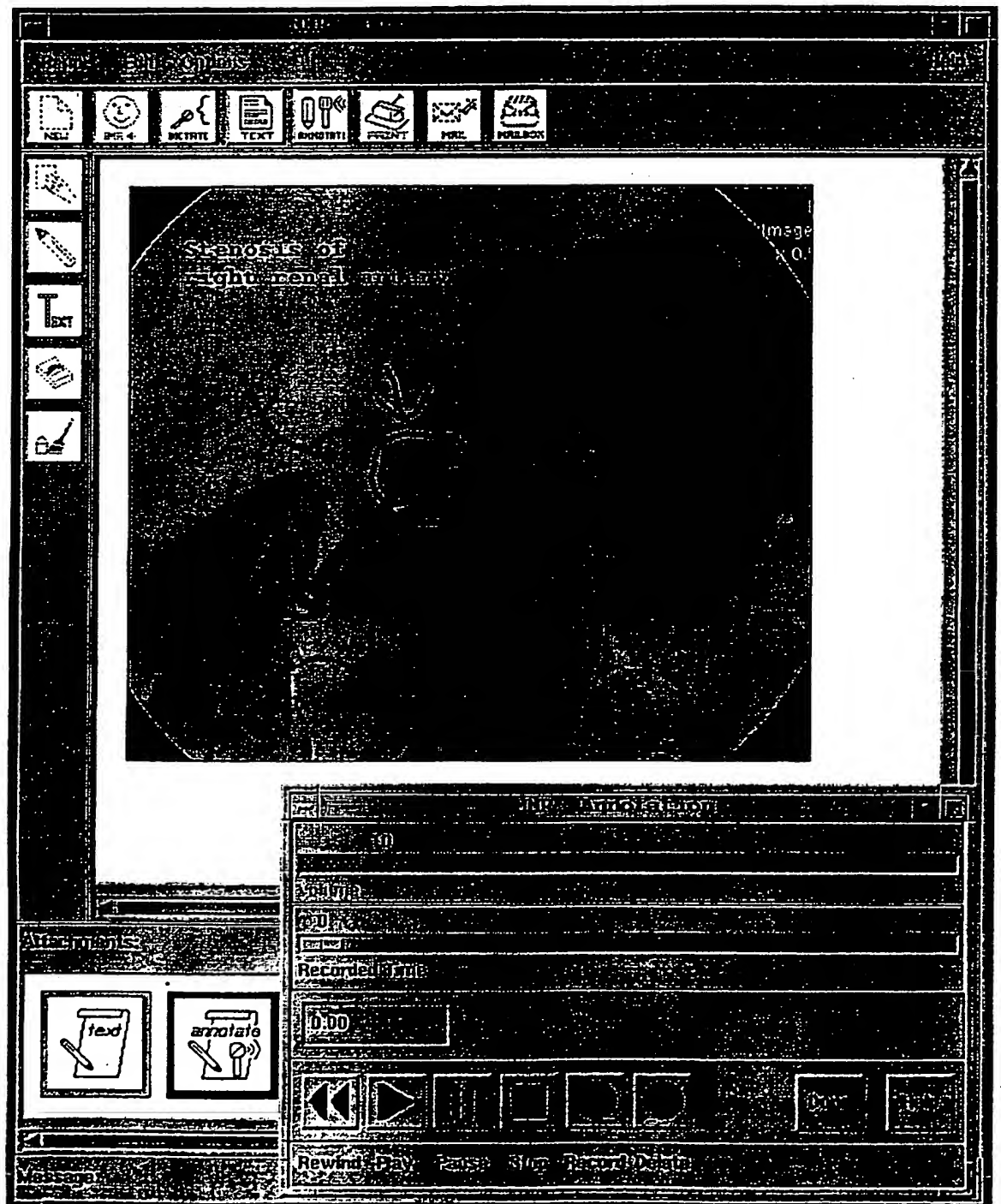
- Icon-based control panel
  - Edit/Viewing Area
  - Attachment Area
1. MMR functions are accessed via self-explanatory *icons*. For example, the "Mail" icon supports the selection of users which are available to receive an MMR; the mail function uses the MIME standard (Multipurpose Internet Mail Extensions) for encoding of the data.
  2. The *edit/viewing area* is a whiteboard displaying the functions of the MMR tool. The selected images are arranged and static or dynamic annotations are recorded/replayed in this area.
  3. The *attachment area* shows the multi-media objects which are part of the MMR (text, dictation, dynamic annotation). Clicking on an icon selects the object.

### 4. Conclusion

A new medical reporting tool has been developed for creating multi-media reports. This tool improves the efficiency of distributing the diagnostic information from radiological examinations. The following improvements are provided by the MMR tool:

- Minimizes the time period between an examination and the start of treatment by quickly distributing short reports which include images, text, voice and dynamic annotations to different locations throughout the hospital.
- Improves clinical communication by enhancing a standard text report with cursor motions and dynamic annotation.
- Improves the radiological services provided to a referring physician.
- Provides asynchronous teleconferencing between radiology and the clinical areas.
- Creates teaching and scientific files with "significant" findings for research and education

Our initial experience with the multi-media reporting tool has been very positive, and we are convinced its benefits will be well-accepted by the medical community.



MMR Window

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